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EXAMINER	
LOFTIN, CELESTE	
ART UNIT	**PAPER NUMBER**
2686	

DATE MAILED: 11/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/822,434	KONG ET AL.	
	Examiner	Art Unit	
	Celeste L. Loftin	2686	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamada et al. (Hamada), **U.S. Patent (6,873,607)**.

Regarding claims 1, Hamada discloses a method of wireless communication, comprising:

monitoring a plurality of frames on a channel (reads on the base station listens the closed random access channel for a predetermined time) **(col. 3 lines 63-66)**; and

detecting a sector-switching indicator (SSI) (i.e. access request) in at least one frame (i.e. frame) and over a sliding window (i.e. super frame) containing at least two frames (reads on the subscriber station intends to issue the access request to the base station checks the received content of the channel, therefore the antenna beam is controlled to be delayed by one frame and it can be shifted frame by frame or super frame) **(col. 10 lines 34-45)**.

Regarding claim 2, Hamada discloses the method of claim 1, further comprising conducting a switch detection decision based on the detecting step (reads on the time slot arrangement of the R channels which change frame by frame may be selected in

accordance with the previously set patter or random patter decided by the base station) **(col. 8 lines 59-65)**.

3. Claim 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Brouwer, **U.S. Patent (6,799,045).**

Regarding claim 16, Brouwer discloses a method of detecting a sector switching indication (SSI), comprising:

conducting a plurality of switch detection decisions in a baseband processor stage, wherein each preliminary switch detection decision corresponds to one of a plurality of active set sectors (the decision is made whether the mobile is in diversity handover (if it is the SSDT indicators are detected at each base station)) **(col. 10 lines 1-10)**

conducting a second switch detection decision based on the plurality of preliminary switch detection decisions in a base station stage (if the mobile is in diversity handover a determination is made whether the SSDT feature is enabled) **(col. 10 lines 1-10)** ; and

determining whether the SSI has been sent based on the second switch detection decision in the base station stage (if the mobile is in diversity handover a determination is made whether the SSDT feature is enabled) **(col. 10 lines 1-10).**

Regarding claim 17, Brouwer discloses the method of claim 16, wherein the second switch detection decision is a final switch detection decision (if the SSDT feature is enabled the indicators are transmitted by the mobile station to each base station) **(col. 10 lines 1-10).**

Regarding claim 18, Brouwer discloses the method of claim 16, wherein the step of conducting the second switch detection decision comprises conducting a plurality of second switch detection decisions (if the SSDT is detected, then information is compared) **(col. 10 lines 1-10)**, and wherein the determining step comprises:

conducting a third switch detection decision based on the plurality of second switch detection decisions (if the SSDT is detected, then information is compared and the next decision is made whether the threshold is exceed by the comparison) **(col. 10 lines 1-10)**; and

determining whether the SSI has been sent from the third switch detection decision (if the SSDT has not been sent then a comparison can not be made in the third decision) **(col. 10 lines 1-13)**.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 3, 5-7, 9-12, and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada et al. (Hamada), **U.S. Patent (6,873,607)** in view of Tee, **U.S. Publication (10,006,048).**

Regarding claim 3, Hamada discloses the method of claim 2, but fails to disclose wherein the switch detection decision in the conducting step is a final switch detection decision.

In a similar field of endeavor, Tee discloses wherein the switch detection decision in the conducting step is a final switch detection decision (when one of the pilots weakens the MS notifies the BS of the change, the network may then determine a new active set) **(paragraph [0026])**.

At the time of invention it would have been obvious to one of ordinary skill in the art to further modify Hamada to include wherein the switch detection decision in the conducting step is a final switch detection decision. Motivation for this modification would have been to allow the mobile station to maintain communication with one or more sectors when connections fail or drop.

Regarding claim 5, Hamada discloses a method of detecting a sector switching indication (SSI), comprising:

monitoring a plurality of frames on at least one channel associated with said at least two active set sectors (reads on the base station listens the closed random access channel for a predetermined time) **(col. 3 lines 63-66)**; and

detecting the SSI (i.e. access request) in at least one frame (i.e. frame) and over a sliding window (i.e. super frame) containing at least two frames (reads on the subscriber station intends to issue the access request to the base station checks the received content of the channel, therefore the antenna beam is controlled to be delayed

by one frame and it can be shifted frame by frame or super frame) **(col. 10 lines 34-45)**. Hamada fails to disclose

identifying a serving sector; and

identifying at least two active set sectors.

In a similar field of endeavor, Tee discloses identifying a serving sector (reads on when a MS is active and communication with a BS through a traffic channel) **(paragraph [0021])** and identifying at least two active set sectors (reads on there maybe instances when the MS is handed off from one BS or sector to another) **(paragraph [0019])**.

At the time of invention it would have been obvious to one of ordinary skill in the art to further modify Hamada to include identifying a serving sector; and identifying at least two active set sectors. Motivation for this modification would have been to allow the mobile station to maintain communication with one or more sectors when connections fail or drop.

Regarding claim 6, the combination discloses the method of claim 5, further comprising conducting a switch detection decision based on the detecting step (reads on the time slot arrangement of the R channels which change frame by frame may be selected in accordance with the previously set patter or random patter decided by the base station) **(col. 8 lines 59-65)**.

Regarding claim 7, the combination discloses the method of claim 6. Tee further discloses wherein the switch detection decision in the conducting step is a final switch

detection decision (when one of the pilots weakens the MS notifies the BS of the change, the network may then determine a new active set) **(paragraph [0026])**.

At the time of invention it would have been obvious to one of ordinary skill in the art to further modify the combination to include wherein the switch detection decision in the conducting step is a final switch detection decision. Motivation for this modification would have been to allow the mobile station to maintain communication with one or more sectors when connections fail or drop.

Regarding claim 9, the combination discloses the method of claim 5, but fails to discloses further comprising:

comparing a pilot signal-to-noise ratio for each of said active set sectors with a signal-to-noise ratio threshold; and

indicating an acceptable signal link if the pilot signal-to-noise ratio is greater than the signal-to-noise ratio threshold to reflect a confidence level.

In a similar field of endeavor, Tee discloses comparing a pilot signal-to-noise ratio for each of said active set sectors with a signal-to-noise ratio threshold (the MS ranks pilot signals and rank them in decreasing order of strength as the pilot signals fade together and the combined signal to noise ratio, if the uniform energy signal strength exceeds the threshold the BS can include itself in the rescue active set and start transmission to the MS) **(paragraph [0107] and [0110])**; and

indicating an acceptable signal link if the pilot signal-to-noise ratio is greater than the signal-to-noise ratio threshold to reflect a confidence level (the MS ranks pilot signals and rank them in decreasing order of strength as the pilot signals fade together

and the combined signal to noise ratio, if the uniform energy signal strength exceeds the threshold the BS can include itself in the rescue active set and start transmissions to the MS) **(paragraph [0107] and [0110])**.

At the time of invention it would have been obvious to one of ordinary skill in the art to further modify the combination to include comparing a pilot signal-to-noise ratio for each of said active set sectors with a signal-to-noise ratio threshold; and indicating an acceptable signal link if the pilot signal-to-noise ratio is greater than the signal-to-noise ratio threshold to reflect a confidence level. Motivation for this modification would have been to allow the mobile station to maintain communication with one or more sectors when connections fail or drop.

Regarding claim 10, the combination discloses the method of claim 5, but fails to discloses wherein the step of identifying the serving sector comprises comparing energy levels of transmissions received in a plurality of sectors, wherein the serving sector has the highest energy level out of said plurality of sectors.

In a similar field of endeavor, Tee discloses wherein the step of identifying the serving sector comprises comparing energy levels of transmissions received in a plurality of sectors, wherein the serving sector has the highest energy level out of said plurality of sectors (the MS ranks pilot signals and rank them in decreasing order of strength as the pilot signals fade together and the combined signal to noise ratio, if the uniform energy signal strength exceeds the threshold the BS can include itself in the rescue active set and start transmissions to the MS) **(paragraph [0107] and [0110]**.

At the time of invention it would have been obvious to one of ordinary skill in the

art to further modify the combination to include wherein the step of identifying the serving sector comprises comparing energy levels of transmissions received in a plurality of sectors, wherein the serving sector has the highest energy level out of said plurality of sectors. Motivation for this modification would have been to allow the mobile station to maintain communication with one or more sectors when connections fail or drop.

Regarding claim 11, the combination discloses the method of claim 5, further comprising updating a frame-based detection history each time the detection step detects the SSI in said at least one fame (the arrangement of the R channels may change every TDMA frame, in this case the base station informs the subscriber of the head time slots that are now transmitting) **(col. 10 lines 4-15)**.

Regarding claim 12, the combination discloses the method of claim 5, but fails to disclose wherein the detecting step detects the SSI in the sliding window by

obtaining a serving metric corresponding to a normal channel quality report for the serving sector; and

obtaining a target metric corresponding to a highest probability that the SSI has been sent to any one of said active set sectors.

In a similar field of endeavor, Tee discloses obtaining a serving metric corresponding to a normal channel quality report for the serving sector (causes of connection drop is due to the loss of forward link signal from the serving BS based on the observation of some field measurement data) **(paragraph [0108])**; and obtaining a target metric corresponding to a highest probability that the SSI has been sent to any

one of said active set sectors (reads on when a rescue condition is detected, a BS in the neighborhood of the MS awaiting rescue can measure the strength of the uniform energy signal transmitted from the MS, if the signal strength exceeds a threshold the BS can include itself in the rescue active set) **(Paragraph [0110])**.

At the time of invention it would have been obvious to one of ordinary skill in the art to further modify the combination to include wherein the detecting step detects the SSI in the sliding window by obtaining a serving metric corresponding to a normal channel quality report for the serving sector; and obtaining a target metric corresponding to a highest probability that the SSI has been sent to any one of said active set sectors. Motivation for this modification would have been to allow the mobile station to maintain communication with one or more sectors when connections fail or drop.

Regarding claim 14, the combination discloses the method of claim 5, but fails to disclose further comprising estimating a sector switch completion time.

In a similar field of endeavor, Tee discloses estimating a sector switch completion time (reads on Td is the constant representing the time between each updating of the rescue active set (time needed for the MS to acquire forward link transmission)) **(paragraph [0085]).**

At the time of invention it would have been obvious to one of ordinary skill in the art to further modify the combination to include estimating a sector switch completion time. Motivation for this modification would have been to allow the mobile station to maintain communication with one or more sectors when connections fail or drop.

Regarding claim 15, the combination discloses the method of claim 5, but fails to disclose further comprising:

directing the serving sector to release the mobile device at a selected time; and

notifying the active set sectors of the selected time.

In a similar field of endeavor, Tee discloses directing the serving sector to release the mobile device at a selected time (reads on Tr is the time between the start of the rescue procedure and the expected time for the connection to be dropped) **(paragraph [0085])**; and notifying the active set sectors of the selected time (if Td is set to a smaller value at the beginning of the recovery procedure it speeds up connection rescue (notification must be established it order for the process to speed up), setting the TD also accounts for time delay before the BS detects the condition that initiates rescue) **(paragraph [0072])**.

At the time of invention it would have been obvious to one of ordinary skill in the art to further modify the combination to include directing the serving sector to release the mobile device at a selected time; and notifying the active set sectors of the selected time. Motivation for this modification would have been to allow the mobile station to maintain communication with one or more sectors when connections fail or drop.

6. Claim 4, is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada et al. (Hamada), **U.S. Patent (6,873,607)** in view of Brouwer, **U.S. Patent (6,799,045).**

Regarding claim 4, Hamada disclose the method of claim 2, but fails to disclose wherein the switch detection decision in the conducting step is a preliminary switch detection decision, and wherein the method further comprises,

conducting a final switch detection decision based on a plurality of preliminary switch detection decisions.

In a similar field of endeavor, Brouwer discloses wherein the switch detection decision in the conducting step is a preliminary switch detection decision (reads on a decision is made whether the mobile is in diversity handover) **(col. 10 lines 1-5)**, and wherein the method further comprises, conducting a final switch detection decision based on a plurality of preliminary switch detection decisions (reads on a decision is made whether the mobile is in diversity handover, if the mobile is in diversity handover, a determination is made whether the SSDT feature is enabled) **(col. 10 lines 1-5)**.

At the time of invention it would have been obvious to one of ordinary skill in the art to further modify Hamada to include wherein the switch detection decision in the conducting step is a preliminary switch detection decision, and wherein the method further comprises, conducting a final switch detection decision based on a plurality of preliminary switch detection decisions. Motivation for this modification would have been to determine if the signals that are being transmitted were reliable.

7. Claim 8, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada et al. (Hamada), **U.S. Patent (6,873,607)** in view of Tee, **U.S. Publication (10,006,048)** in further view of Brouwer, **U.S. Patent (6,799,045).**

Regarding claim 8, the combination discloses the method of claim 6, but fails to disclose wherein the switch detection decision in the conducting step is a preliminary switch detection decision, and wherein the method further comprises conducting a final switch detection decision based on a plurality of preliminary switch detection decisions.

In a similar field of endeavor, Brouwer discloses wherein the switch detection decision in the conducting step is a preliminary switch detection decision (reads on a decision is made whether the mobile is in diversity handover) **(col. 10 lines 1-5)**, and wherein the method further comprises, conducting a final switch detection decision based on a plurality of preliminary switch detection decisions (reads on a decision is made whether the mobile is in diversity handover, if the mobile is in diversity handover, a determination is made whether the SSDT feature is enabled) **(col. 10 lines 1-5)**.

At the time of invention it would have been obvious to one of ordinary skill in the art to further modify the combination to include wherein the switch detection decision in the conducting step is a preliminary switch detection decision, and wherein the method further comprises, conducting a final switch detection decision based on a plurality of preliminary switch detection decisions. Motivation for this modification would have been to determine if the signals that are being transmitted were reliable.

Regarding claim 13, the combination discloses the method of claim 12. Tee further discloses further discloses further comprising:

accumulating a plurality of target metrics over the sliding window (reads on although the method of adding pilots according to a signal strength ranked in a list is optimal for improving forward link quality (over Td which is the time it takes to update the rescue active set)) **(paragraphs [0085] [0107] and [0109]**;

selecting a largest target metric out of the plurality of target metrics (if the uniform energy signal strength exceeds the threshold the BS can include itself in the rescue active set and start transmission to the MS) **(paragraph [0107] and [0110]).**

Tee fails to disclose indicating a likelihood that the SSI has been sent if the largest target metric is above the serving metric plus a threshold.

In a similar field of endeavor, Brouwer discloses indicating a likelihood that the SSI has been sent if the largest target metric is above the serving metric plus a threshold (reads on at the base station the SSDT cell identifier is compared to the base station identifier, if the comparison exceeds the threshold connection commands are determined to be reliable) **(col 10 lines 5-11)**.

At the time of invention it would have been obvious to one of ordinary skill in the art to further modify the combination to include wherein the switch detection decision in the conducting step is a preliminary switch detection decision, and wherein the method further comprises, conducting a final switch detection decision based on a plurality of preliminary switch detection decisions. Motivation for this modification would have been to determine if the signals that are being transmitted were reliable.

8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brouwer, **U.S. Patent (6,799,045)** in view of (Hamada), **U.S. Patent (6,873,607).**

Regarding claim 19, Brouwer discloses the method of claim 16, but fails to disclose wherein each of said plurality of switch detection decisions in said conducting step is conducted by:

monitoring a plurality of frames on a channel; and

detecting the SSI in one of frames and in a sliding window containing at least two frames.

In a similar field of endeavor, Hamada discloses monitoring a plurality of frames on a channel monitoring a plurality of frames on a channel (reads on the base station listens the closed random access channel for a predetermined time) **(col. 3 lines 63-66)**; and detecting the SSI (i.e. access request) in at least one frame (i.e. frame) and over a sliding window (i.e. super frame) containing at least two frames (reads on the subscriber station intends to issue the access request to the base station checks the received content of the channel, therefore the antenna beam is controlled to be delayed by one frame and it can be shifted frame by frame or super frame) **(col. 10 lines 34-45)**.

At the time of invention it would have been obvious to one of ordinary skill in the art to further modify Hamada to include wherein each of said plurality of switch detection decisions in said conducting step is conducted by: monitoring a plurality of frames on a channel; and detecting the SSI in one of frames and in a sliding window containing at least two frames. Motivation for this modification would have been to create a situation that the influence of interference does not carry on.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

An et al, U.S. Publication 2004/0202131 A1, discloses an apparatus and method for determining soft or softer handoff in a mobile communication system.

Dupuy, U.S. Patent 5,774,790, discloses sectorized cellular mobile radio system with sector signaling and control in predetermined time slots.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Celeste L. Loftin whose telephone number is 571-272-2842. The examiner can normally be reached on Monday thru Friday 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on 571-272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CL

JOY K. CONTEE
PATENT EXAMINER